

# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

REC'D 17 MAR 2004

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| Applicant's or agent's file reference<br>GCL/8730 WO2   | <b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416) |   |
| International application No.<br>PCT/GB 03/01283  | International filing date ( <i>day/month/year</i> )<br>25.03.2003  | Priority date ( <i>day/month/year</i> )<br>28.03.2002 |
| International Patent Classification (IPC) or both national classification and IPC<br>F01B9/06 |  |   |
| Applicant<br>SHANE ENGINES LIMITED et al.   |  |   |


1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 4 sheets, including this cover sheet.
 

☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 10 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the opinion
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

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|---|--|
| Date of submission of the demand<br><br>16.07.2003  | Date of completion of this report<br><br>16.03.2004                      |
| Name and mailing address of the international preliminary examining authority:<br> European Patent Office<br>D-80298 Munich<br>Tel. +49 89 2399 - 0 Tx: 523656 epmu d<br>Fax: +49 89 2399 - 4465 | Authorized Officer<br><br>Yates, J<br><br>Telephone No. +49 89 2399-2696 |



**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. **PCT/GB 03/01283**

**I. Basis of the report**

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

**Description, Pages**

1-30 as originally filed

**Claims, Numbers**

1-45 received on 23.12.2003 with letter of 22.12.2003

**Drawings, Sheets**

1/10-10/10 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).  
☐ the language of publication of the international application (under Rule 48.3(b)).  
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority in written form.  
☐ furnished subsequently to this Authority in computer readable form.  
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.  
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:  
☐ the claims, Nos.:  
☐ the drawings, sheets:

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5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

|                               |             |        |
|-------------------------------|-------------|--------|
| Novelty (N)                   | Yes: Claims | 1 - 45 |
|                               | No: Claims  |        |
| Inventive step (IS)           | Yes: Claims |        |
|                               | No: Claims  | 1 - 45 |
| Industrial applicability (IA) | Yes: Claims | 1 - 45 |
|                               | No: Claims  |        |

2. Citations and explanations

**see separate sheet**

**Section V - Inventive step**

The nearest prior art is shown in US-A-2 173 303, although US-A-3 945 358 and US-A-5 553 574 also show similar mechanisms with the movement of pistons in cylinders being controlled by a guide slot. The difference of the subject matter of claims 1 and 36 lies in the particular form of the guide member slot.

The above mentioned documents do not give the precise forms of the slots, rather use general expressions (such as "double oval") to describe them. Thus, it is left to the skilled man to establish the desired form. While dimensions cannot be taken from drawings, general relationships can, and looking at the figures of these documents, in particular US-A-2 173 303- fig 4, US-A-3 945 358 - fig 1 and US-A-5 553 574, figs 4, 5, 6 and 11, it is readily apparent that the skilled man has indeed made use of the freedom to arrange the slot as desired.

The particular form of slot claimed in claims 1 and 36 is not shown in any of the documents (although this is perhaps open to debate as far as figs 6 and 13 of US-A-5 553 574 are concerned, since claim 1 does not explicitly specify whether the curve at the narrow portion is convex or concave), however, the claimed form can be considered to be a compromise between the form of US-A-2 173 303- fig 4, in which the radius at the narrow portion appears relatively small, and US-A-3 945 358 - fig 1 in which the radius appears infinite. Reducing the convexity of the arrangement of US-A-2 173 303- fig 4 in the general direction taught by US-A-3 945 358 - fig 1, or arranging a slight convexity as taught by US-A-2 173 303- fig 4 in the arrangement of US-A-3 945 358 - fig 1 would lead to the claimed form of groove.

The choice of a particular arrangement between two known arrangements for a component in which the skilled man has been given, and is known to have used, considerable freedom, cannot be considered inventive.

The dependent claims do not appear to contain any additional features which, in combination with the features of any claim to which they refer, involve an inventive step, since they also describe simple constructional arrangements which would lie within the normal work of the skilled man.